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ABSTRACT

The focus of this paper is on the relative roles of personality and training in enabling teachers to carry out the kinds of complex learning models which are envisioned by curriculum reformers in the social sciences. The paper surveys some of the major research done in this area and concludes that: 1) Most teachers do not manifest the complex teaching models which are required in most curriculum innovations in the social sciences; 2) It is possible to train teachers to acquire complex models of teaching but personality plays a role in the acquisition of these models; and 3) It is worthwhile to develop instructional systems which modulate training types to the conceptual style or learning style of the teacher. Tables, charts and a reference list are included in this study. (FDI)

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Conceptual Complexity, Teaching Style and Models of Teaching

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Nearly all proposals for improving social studies depend on the assumption that teachers can learn complex models of teaching and implement them in the classroom. This assumption holds true both for attempts to improve traditional approaches to the social studies and also for attempts at innovation in both content and process. Since 1917 those social studies specialists who are concerned with civic education have advocated extremely complex group dynamics models of teaching similar to the democratic process models advocated by Dewey, Michaelis and Thelen or affectively oriented models such as those developed from T group theory or from Gestalt therapy. Complex models of teaching have also been advocated by those concerned with social values such as Oliver and Shaver (the Jurisprudential Model) and Shaftel (role playing for social values). Those who have emphasized disciplines of the social sciences have employed strategies which are either complex in process (as Taba's inductive strategy) or in content (as the approach to encompass developed by Rader and his colleagues). Some models are complex in both process and content (as Fenton's at the secondary level). Anthropology Curriculum Project at the University of Georgia uses a relatively simple strategy at first but increasingly requires both student and teacher to engage in complex modes of inquiry. The developers of game-type simulations (such as the High School Geography project, Coleman and his associates at John Hopkins, Guetzkow and his associates in the case of inter-nation simulation) have created learning modes requiring difficult teaching skills if

they are to be implemented. In other words democratic process advocates, human relations trainers, those who focus on social values, members of the academic disciplines and Cybernetists have all created approaches to the social studies which place considerable demands on the teacher. These demands are both in terms of substance (such as knowledge of the academic disciplines or the processes by which human beings develop values) and also in terms of transactional competencies, i.e. the ability to interact with students so as to produce a particular kind of learning process. In this paper we will be concerned primarily with the transactional processes, although we do not eschew the importance of substance or intend to imply that it can be long separated from competence in content.

Our focus is on the relative roles of personality and training in enabling teachers to carry out the kinds of complex learning models which are envisioned by curriculum reformers in the social studies.

In a previous publication we have described the models of teaching in terms of four groups or families which are based on different frames of reference toward teaching and learning. That is to say, the families of models of teaching are based on different conceptions of educational goals and means. [1]

INFORMATION-PROCESSING MODELS are oriented toward the academic disciplines, their structure and modes of inquiry. These sources are concerned primarily with the information-processing capabilities of the individual and systems which can be taught him to improve this capability. By information-processing we mean the ways people handle stimuli from the environment, organize data, sense problems, generate concepts and solutions to problems and employ verbal and non-verbal symbols.

SOCIAL INTERACTION SOURCES represent models derived from a conception of society and models oriented toward the development of interpersonal relations. These models reflect a view of human nature which gives priority to social relations and the creation of a better society. Academic inquiry is pursued

from this reference.

The third family of models, THE PERSONAL SOURCES, center on the individual as the source of educational ideas. These frames of reference spotlight personal development and they emphasize the processes by which the individual constructs and organizes his reality. Frequently, they emphasize the personal psychology and the emotional life of the individual.

BEHAVIOR MODIFICATION SOURCES have developed from attempts to create efficient systems for sequencing learning activities and shaping behavior by manipulating reinforcements.

TABLE ONE

THE MODELS OF TEACHING
CLASSIFIED BY FAMILY AND MISSION

	MODEL	MAJOR THEORIST	FAMILY OR ORIENTATION	MISSIONS OR GOALS FOR WHICH APPLICABLE
1.	Inductive Model	Hilda Taba	Information Processing	Primarily for development of inductive mental processes and academic reasoning or theory building but these capacities are useful for personal and social goals as well.
2.	Inquiry Training	Richard Suchman	Information Processing	
3.	Science Inquiry Model	Joseph J. Schwab (also much of the Curriculum Reform Movement, see Jerome Bruner The Process of Education for the rationale)	Information Processing	Designed to teach the research system of the discipline but also expected to have effects in other domains (i.e. sociological methods may be taught in order to increase social understanding and social problem-solving).
4.	Jurisprudential Teaching Model	Donald Oliver and James P. Shaver	Information Processing	Designed primarily to teach the jurisprudential frame of reference as a way of processing information but also as a way of thinking about and resolving social issues.
5.	Concept Attainment	Jerome Bruner	Information Processing	Designed primarily to develop inductive reasoning.
6.	Developmental Model	Jean Piaget Irving Sigel Edmund Sullivan	Information Processing	Designed to increase general intellectual development especially logical reasoning but can be applied to social and moral development as well. (See Kohlberg)

TABLE ONE (con't)

	MODEL	MAJOR THEORIST	FAMILY OR ORIENTATION	MISSIONS OR GOALS FOR WHICH APPLICABLE
7.	Advance Organizer Model	David Ausubel	Information Processing	Designed to increase the efficiency of information processing capacities to meaningfully absorb and relate bodies of knowledge.
8.	Group Investigation	Herbert Thelen John Dewey	Social Interaction	Development of skills for participation in democratic social process through combined emphasis on interpersonal social (group) skills and academic inquiry. Aspects of personal development are important outgrowths of this model.
9.	Social Inquiry	Byron Massialas Benjamin Cox	Social Interaction	Social problem-solving primarily through academic inquiry and logical reasoning.
10.	Laboratory Method	National Training Laboratory (NTL) Bethel, Maine	Social Interaction	Development of interpersonal and group skills and through this personal awareness and flexibility.
11.	Non-Directive Teaching	Carl Rogers	Person	Emphasis on building capacity for self-instruction and through this personal development in terms of self-understanding, self-discovery and self-condept.
12.	Classroom Meeting Model	William Glasser	Person	Development of self-understanding and self-responsibility. This would have latent benefits to other kinds of functioning i.e. social.

TABLE ONE (con't)

	MODEL	MAJOR THEORIST	FAMILY OF ORIENTATION	MISSIONS OR GOALS FOR WHICH APPLICABLE
13.	Awareness Training	William Schutz Fritz Perls	Person	Increasing personal capacity for self exploration and self-awareness. Much emphasis on development of interpersonal awareness and understanding.
14.	Synectics	William Gordon	Person	Personal development of creativity and creative problem-solving.
15.	Conceptual Systems Model	David E. Hunt	Person	Designed to increase personal complexity and flexibility.
16.	Operant Conditioning	B.F. Skinner	Behavior Modification	General applicability. A domain-free approach though probably most applicable to information processing functioning.

Each of the families of models of teaching require particular kinds of complexity in teacher behavior. Most of the models from the Personalistic Family presume an ability to take into account the frame of reference of the other and to modulate one's behavior so as to facilitate individual personal development. The Group Dynamics models presuppose the competence to help groups organize to determine ends and means and to help individuals negotiate with one another over multiple frames of reference. The information processing models assume that the teacher is able to process information at a rapid rate, can induce students to engage in inductive activity and can facilitate acquisition of unfamiliar modes of thinking.

COMPLEX MODELS OF TEACHING AND TRADITIONAL TEACHING STYLES

The research into the teaching process in the last fifteen years indicates that the average teacher has a style which is very different from any of these families of teaching models. Arno Bellack's study [2] of secondary social studies teachers, for example, resulted in the following conclusions:

> The person playing the role of teacher in the classrooms observed follows these rules:
> 1. The teacher's primary role is that of solicitor: about one-half of his moves are solicitations. Furthermore, the teacher makes a majority of all soliciting moves in the game.
> 2. In a majority of his soliciting moves, the teacher calls for the performance of a substantive task; that is in about three-fifths of his moves he attempts to elicit information from pupils about the subject matter under study. In approximately two-fifths of his moves he calls for an instructional task, directing pupils to perform activities related to the management of the classroom as a social unit.
> 3. The teacher generally makes it known that he expects only one pupil to respond at a time, although other interaction patterns are possible. As a major exception to this rule, when the task is an instructional one, he may sometimes expect all pupils to respond in unison; but when the task is a substantive one, he rarely expects pupils to respond in unison unless a vote to indicate opinion is involved.
> While the teacher is the only speaker who may expect the agent to perform some activity outside the classroom and/or at some future time, even he does not attempt to elicit such activity very frequently.
> 4. The teacher seldom calls for the performance of more than one task in a given move. If he chooses to do so, at least one of the tasks is normally a substantive one; only infrequently does he make a move presenting more than one instructional task. In his multi-task moves, the teacher expects the same information process in both components--most often constructing--but expects two different logical process activities, usually fact-stating and explaining.

Flanders and other teachers in their work in social studies have indicated that students ask very few questions in classrooms (only about one to three percent of all classroom communications are questions asked by pupils). Teachers

ask many more questions and the vast variety are narrow ones designed to elicit a specific response.[3]

In our own studies we have scrutinized the styles of teachers to compare them with the various models of teaching. We have found little evidence of reflective communications (essential for personalistic models) negotiated procedures (essential for interactive models) and very few inductive episodes (essential for most information-processing models). In one study of twenty experienced teachers we found only one example of a communication by a teacher which was clearly designed to elicit productive thinking.[4]

Our previous investigations have also indicated that many teachers in training appear to become less variable in teaching styles during the course of training. By the end of training they have also become less rewarding and more punishing, ask fewer questions (and fewer open questions) and plan much less with students than they did at the beginning of training. Hunt [5] describes this as a "funneling" effect, where a range of teaching styles at the beginning of training is gradually funneled into a more homogeneous model.

Reviewing the history of studies of teaching Hoetker and Ahlbrand reported that this "average" practiced pattern of teaching is best described as a recitation style, a "model" quite different from the complex models of teaching advocated by reformers in social studies education.[6]

PERSONALITY AND TEACHING STYLE

Over the last ten years Hunt, Joyce and their collaborators have attempted to determine the interrelationship between conceptual complexity and teaching style. In 1966 Hunt and Joyce[7] reported relationships between several dimensions of teaching style and the conceptual development of the teacher. The less complex (Low CL) teachers had the more restricted styles with the teachers of higher conceptual level manifesting a greater variety of style and complexity.

The high CL teachers ask more complex questions and make more complex procedural moves in the classroom. Murphy and Brown replicated and extended this line of investigation[8] and found that high conceptual level teachers were more positive, asked more complex and open questions and negotiated more with students.

Rathbone[9] found that personality development not only influenced teaching behavior but learner behavior as well. The personality interaction between teacher and student considerably affected the environment of the classroom. When high CL teachers and students worked together there was a vastly more complex interaction. Brown and his associates did not find a relationship between personality and teaching style but reported that nearly all of their subjects were extremely low in CL (a situation apparently typical of many teacher training institutions).

Hence, there is substantial evidence that there is a relationship between conceptual level and teaching style especially complexity of teaching style. This, combined with the fact that apparently many teachers employ a recitation teaching strategy, makes it a matter of serious concern to explore the processes by which teachers take on complex teaching styles or models of teaching which are necessary to many social studies innovations.

The seriousness of this problem is illustrated by the many reports of difficulty in implementing innovative curriculums. For example, Almy[10] exposed the extent to which implementation of a variety of discipline-based curriculum models might influence the acquisition of more advanced stages of thinking by primary-level children. She was forced to conclude that implementation of the curriculum models in the classrooms varied widely. The teachers apparently did not acquire the transactional competence necessary to implement the curriculums or at least did not display those competencies in their classrooms. Bond and Dykstra[11] reported great variety in levels of implementation of complex models

for teaching reading indicating that either teachers did not acquire the models necessary to implement those curriculum plans or, if they had acquired the necessary skills, were not using them in the classroom.

Oliver[12] and his associates have repeatedly reported difficulty in teaching teachers to implement their Jurisprudential model and have suggested a relationship between teacher personality and the ability to acquire that model. The literature is replete with examples like these.

The question which emerges is this: "Can teachers learn complex models of teaching at variance with the typical teaching style of the American classroom?" This question is closely related to the problem: "If personality and teaching style are related, what is the relationship between personality and the acquisition of unfamiliar models of teaching?"

TRAINING RESEARCH: PERSONALITY AND THE ACQUISITION OF COMPLEX MODELS OF TEACHING

The systematic training of teachers to use complex models of teaching has only recently been combined with the objective study of teaching. To date there are only a few studies which can help us answer the question about the function of personality in the acquisition of complex teaching models.

The engineering research which has accompanied the development of the Minicourses at the Far West Laboratory has indicated that it is possible to build instructional systems through which teachers can learn to employ teaching skills which are at variance with their accustomed teaching style.[13] Meredith and Borg conducted research which appears to indicate that personality may play some role in susceptibility to training.

During the last three years at Teachers College, Columbia University, we have, with Wald and other associates,[14] conducted an extensive series of investigations associated with our attempt to build instructional systems which can help teachers acquire a repertoire of models of teaching. Nearly all the models

of teaching we have concentrated on have been related to social studies teaching and the implementation of the models has normally been in the social studies domain or domains quite closely associated with it (such as the language arts.)

We began by building a series of instructional systems.[14] Several media are employed and the instructional systems are organized in five sequential phases as follows:

> Stage one constitutes an exploration of the theory of the model. Readings are combined with discussion and exercises comparing the theories of different models with one another.
>
> Stage two demonstrates the model through television tapes, transcripts and description of learning activities.
>
> State three involves peer teaching. During this phase teacher candidates teach one another using materials which have been prepared beforehand.
>
> Stage four is microteaching practice with small groups of children. Trainees take turns observing one another and television recording are used to facilitate feedback and analysis.
>
> The fifth stage consists of application to a classroom first with materials supplied to the candidate and later with materials he prepares himself.

In 1970-71 a group of teacher trainees were exposed to instructional systems to teach them three models of teaching: Concept Learning, Synectics and Group Investigation. The Concept Learning Model (from the information-processing family) is a directive strategy primarily focused on inductive thinking.[14] Hypothesis development, validation and analysis of thinking strategies are encouraged through the analysis of concepts. Group Investigation (interactive domain) is a democratic process model built around co-

operative problem solving.[14] The essence of the strategy is pupil formulation of an academic inquiry in a cooperative social system. Because Group Investigation is much less directive than the other models, it is in some ways the most complex to carry out. Synectics (personal domain) is built around training in the use of metaphors to develop creative thinking.[15]

The teachers were studied as they attempted to implement the models in small group teaching situations and their behavior when doing so was compared with their behavior when teaching normally in the classroom. Table Two presents the results of part of these investigations in terms of a series of categories used in the Teacher Innovator Interaction Analysis System.

TABLE TWO

MEAN PERCENTAGES OF SUB-CATEGORIES IN NON-MODEL AND MODEL LESSONS OF TEACHER CANDIDATES AND TEACHING BEHAVIORS OF COOPERATIVE TEACHERS

Category	Mean %				
	Non-Model	Concept Attainment	Group Investigation	Synectics	Cooperating Teachers
General Category-Sanctioning:					
T rewards lower mental activity	3.82	3.37	1.11	1.62	3.19
T punishes lower mental activity	0.71	0.38	0.13	0.24	1.05
T rewards higher mental activity	0.88	1.47	0.23	1.35	0.73
T punishes higher mental activity	0.11	0.27	0.02	0.10	0.22
T rewards group relations	0.03	0.03	0.00	0.00	0.03
T punishes group relations	0.13	0.06	0.07	0.05	0.13
T rewards following directions	0.09	0.07	0.36	0.08	0.20
T punishes following directions	1.48	1.49	1.66	1.63	3.68
T generally supportive	0.44	0.31	0.74	0.28	0.60
T generally punishing	0.13	0.14	0.21	0.08	0.41
S rewards	0.05	0.02	0.23	0.05	0.03
S punishes	0.97	0.58	1.33	1.09	0.37
General Category-Information:					
T question memory level	8.81	5.79	5.15	5.66	9.52
T statement memory level	7.27	5.66	5.60	4.96	10.12
S question memory level	0.85	0.44	0.94	0.47	0.81
S statement memory level	12.07	6.90	10.26	11.21	11.42
T question translation level	6.35	10.68	1.02	2.48	5.12
T statement translation level	3.88	3.03	2.19	2.26	6.87
S question translation level	0.37	0.16	0.33	0.35	0.15
S statement translation level	9.71	14.00	3.41	5.37	7.29
T question interpretation level	3.20	5.66	1.26	5.04	3.18
T statement interpretation level	0.91	1.25	0.17	1.25	0.72
S question interpretation level	0.05	0.07	0.02	0.02	0.22
S statement interpretation level	2.96	5.33	0.89	5.48	2.86
T question application level	0.68	1.11	0.13	0.92	0.49
T statement application level	0.09	0.12	0.02	0.05	0.01
S question application level	0.00	0.00	0.00	0.00	0.02
S statement application level	0.61	1.33	0.04	1.32	0.36
T question analysis level	0.33	1.08	0.12	0.55	0.05
T statement analysis level	0.13	0.24	0.00	0.08	0.06
S question analysis level	0.01	0.01	0.00	0.00	0.00
S statement analysis level	0.25	0.90	0.10	0.55	0.06

TABLE TWO (CONTINUED)

MEAN PERCENTAGES OF SUB-CATEGORIES IN NON-MODEL AND MODEL LESSONS OF TEACHER CANDIDATES AND TEACHING BEHAVIORS OF COOPERATIVE TEACHERS

Category	Mean % Non-Model	Concept Attainment	Group Investigation	Synectics	Cooperating Teachers
T question synthesis level	0.21	0.02	0.01	5.82	0.02
T statement synthesis level	0.02	0.02	0.00	0.47	0.00
S question synthesis level	0.00	0.00	0.00	0.02	0.00
S statement synthesis level	0.25	0.02	0.00	5.64	0.01
T question evaluation level	0.11	0.01	0.00	0.00	0.00
T statement evaluation level	0.00	0.00	0.00	0.00	0.00
S question evaluation level	0.00	0.00	0.00	0.00	0.00
S statement evalution level	0.02	0.00	0.00	0.02	0.00
General Category-Opinioning:					
T asks for opinion	0.81	1.36	2.90	3.30	0.36
T gives opinion	0.26	0.43	0.80	0.43	0.18
S asks for opinion	0.01	0.08	0.23	0.08	0.02
S gives opinion	1.65	2.10	5.43	6.15	0.37
General Category-Procedures:					
T directs procedures	11.65	8.22	9.27	8.37	14.56
S directs procedures	2.18	1.21	2.83	1.54	0.77
T negotiates procedures	3.05	2.19	14.17	1.33	3.22
S negotiates procedures	1.65	0.60	15.66	0.80	1.56
T directs standards	0.04	0.03	0.12	0.04	0.02
S directs standards	0.03	0.01	0.32	0.00	0.01
T negotiates standards	0.05	0.02	0.38	0.26	0.04
S negotiates standards	0.05	0.00	0.20	0.23	0.03
General Category- Maintenance:					
T provides transition	3.79	3.90	3.07	3.71	3.36
S provides transition	0.05	0.06	0.12	0.07	0.00
T makes small talk	0.43	0.48	0.40	0.32	0.31
S makes small talk	2.32	2.41	3.76	3.45	1.47
T discusses routine	0.07	0.13	0.13	0.01	0.35
S discusses routine	0.03	0.06	0.19	0.01	0.09
T repeat by teacher	3.89	4.72	2.27	4.64	3.50

Each model requires certain behaviors which are quite different from normal classroom behavior. Group Investigation requires teachers to negotiate with children the goals and means of their study following a puzzling confronting incident. Synectics requires the use of metaphoric thinking over social problems. Concept learning (which is derived from Taba's instructional strategy) requires an inductive sequence emphasizing conceptual level thinking.

The results indicate very clearly that teachers taught very differently when teaching each of the models than they did normally. The amount of negotiating behavior on the part of the teachers and students was considerable in group investigation, synthesis level communications for both teacher and student were greatly increased when Synectics were being practiced and conceptual level behavior was greatly increased when concept learning was being practiced.

Table Three shows the mean indices of those types of behavior and presents the results of the analysis of variance comparing the means of the critical behaviors for each of the models.

TABLE THREE

SUPPLEMENTARY ANALYSIS: THE DETERMINATION OF MODEL ENVIRONMENTS USING ANALYSIS OF VARIANCE

If we think of Models of teaching as creating distinct learning environments, one important question to ask with respect to this study is whether the environments were different. In other words, were there greater variations in the nine environment indices among the four environments than within a model environment, the four environments being Concept Attainment, Group Investigation, Synectics and Non-Model? For each index, a one way analysis of variance with repeated measures was computed for each of the twenty-six subjects in each of the four conditions of teaching. The results can be found below:

SUMMARY DATA AND ANALYSIS OF VARIANCE DATA ON NINE MODEL ENVIRONMENT INDICES FOR THREE MODELS OF TEACHING AND NON-MODEL BEHAVIOR

INDEX 1: TEACHER TALK

	Concept Attainment	Group Investigation	Synectics	Non-Model	Grand Mean
Mean	.63	.53	.56	.63	.59

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	F
Between Subjects	.17	25		
Within Subjects	.35	78		
Columns	.20	3	.06	33.26*
Residual	.15	75	.00	
Total	.53	103		

TABLE THREE (continued)

INDEX 2: NEGOTIATED PROCEDURES, TEACHER

	Concept Attainment	Group Investigation	Synectics	Non-Model	Grand Mean
Mean	.02	.14	.01	.03	.05

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	F
Between Subjects	.03	25		
Within Subjects	.37	78		
Columns	.28	3	.09	75.50*
Residual	.09	75	.00	
Total	.41	103		

INDEX 3: NEGOTIATED PROCEDURES, STUDENT

	Concept Attainment	Group Investigation	Synectics	Non-Model	Grand Mean
Mean	.00	.15	.00	.01	.04

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	F
Between Subjects	.06	25		
Within Subjects	.64	78		
Columns	.41	3	.13	47.00 *
Residual	.22	75	.00	
Total	.70	103		

TABLE THREE (continued)

INDEX 4: HIGHER-LEVEL INFORMATION PROCESSING

	Concept Attainment	Group Investigation	Synectics	Non-Model	Grand Mean
Mean	.07	.02	.27	.04	.10

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Square	F
Between Subjects	.34	25		
Within Subjects	1.65	78		
Columns	1.01	3	.33	39.90*
Residual	.63	75	.00	
Total	1.99	103		

INDEX 5: MIDDLE-LEVEL INFORMATION PROCESSING

	Concept Attainment	Group Investigation	Synectics	Non-Model	Grand Mean
Mean	.19	.04	.19	.11	.13

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	F
Between Subjects	.28	25		
Within Subjects	.74	78		
Columns	.36	3	.12	23.31*
Residual	.38	75	.00	
Total	1.03	103		

The indices reflecting increased concept activity are significant for Concept Learning, increased amounts of higher level thinking are significant for Synectics and increased amounts of negotiated behavior are significant for Group Investigation.

This type of finding, which we have replicated several times, has encouraged us to believe that it is possible to make changes in teacher behavior so that they add to their repetoire elements of teaching strategies which are at odds with the "normal" types of teaching behavior.

In a further series of investigations, Wald, Weil and Joyce attempted to determine the extent to which personal values and conceptual level were related to ability to master these models of teaching. In one investigation ratings of "effectiveness" in model implementation were correlated with conceptual level and measures of values and educational attitudes.

Four measures of personality and attitudinal orientation were employed.

1. Conceptual Level (The Sentence Completion Test).[16] This is a general measure of cognitive flexibility.
2. The Allport/Vernon/Lindzey Study of Values.[17] This inventory determines the extent to which a person has affinity to six basic value orientations. Of these the Social and Theoretical orientations were selected because these relate logically to the social and information-processing families.
3. Wehling/Charters Inventory of Teacher Conceptions of the Educative Process[18] This test measures educational belief systems. Sub-scores pertinent to specific models are: Subject Matter Emphasis, Personal Adjustment Ideology, and Student Autonomy.
4. The Kraitlow/Dreier Inventory, A Scale for Determining Teacher Beliefs[19] This test yields these scores: Progressive (child-centered), Community (socially oriented), and Academic (subject matter oriented).

The effectiveness ratings for practice sessions with each model and an overall effectiveness score (a composite of the model-specific scores) were correlated with the measures of educational attitude, value orientation and personality (CL). The results are presented in Table Four.

Conceptual level was not related to the ability to acquire any single model of teaching but was related to overall performance indicating that flexibility and the acquisition of complex teaching behavior is associated with the development of conceptual complexity. Hence it appears that conceptual development is not only related to a person's natural teaching style but to his ability to acquire new modes of behaving with students. Personal and social values were on the whole not influential in the acquisition of models of teaching.

The social values scores for the Allport/Vernon/Lindzey Study of Values was associated with the acquisition of Group Investigation (which is a socially oriented teaching strategy) but none of the other correlations were significant. We believe that it is probably possible to teach a person minimal competence in a complex model of teaching irrespective of his social and personal values towards teaching provided he has conceptual flexibility. But the incorporation of the model of teaching into a regularly used repertory of teaching behavior is probably related to the values the individual holds.

In 1971-72 Weil [20] compared teacher candidates rated highly effective in implementing several models of teaching with individuals who implemented them at a minimum level. She studied the transactions between teachers and learners in each case and found considerable differences that again are suggestive for the role of personality in teaching behavior. In the first case the successful implementers apparently used informational communications more effectively. In the Group Investigation model they used communications at the factual level to

TABLE FOUR

COEFFICIENTS OF CORRELATION AMONG PERSONALITY MEASURES AND EFFECTIVENESS SCORES FOR ALL MODELS AND OVERALL MODEL PERFORMANCE

	Effectiveness Scores			
Measures of Personality and Values (Pertinent Models are indicated in parenthesis)	Concept Attainment	Group Investigation	Synectics	Overall Effectiveness
Conceptual Level	0.239	0.150	0.356	0.420*
Alport/Vernon/Lindzey: Theoretical (Concept Attainment)	0.289	-0.271	0.230	0.177
Social (Group Investigation)	-0.041	0.611**	0.178	0.260
Wehling/Charters: Subject Matter Emphasis (Concept Attainment)	0.224	0.136	0.293	0.236
Personal Adjustment Ideology (Group Investigation)	-.0.229	0.101	0.216	0.169
Student Autonomy (Synectics)	-0.153	0.062	-0.132	0.038
Kraitlow/Dreier Progressive (Synectics)	-0.067	-0.018	0.121	0.168
Community (Group Investigation)	-0.249	-0.174	-0.121	-0.165
Academic (Concept Learning)	-0.240	-0.016	-0.264	-0.152

*Indicates significance at the .05 level for a two-tailed test. Critical r with 23 df = ± .396.

**Indicates significance at the .01 level for a two-tailed test. Critical r with 23 df = ± .505.

clarify issues to move the discussions. Teachers who had difficulty implementing Group Investigation employed much less negotiating behavior but also dealt with information much less frequently. Thus they tended to plan with students over a much thinner informational base than did the high implementers. This was true also in the Concept Learning model. The high implementers dealt more often at the conceptual level but they also used lower level informational communications more frequently and apparently more effectively. They evidently recognized the importance of helping the students to identify the data clearly and to build concepts with a constant relation to the data base. The poor implementers would often move to a level of abstraction without relating it to the data over which the students were supposed to be thinking. Weil's study of role playing (a teaching strategy developed by Fanny Shaftel of Stanford University) was especially instructive because Role-Playing is designed to teach students to make their own values the data of their investigations. By Role-Playing conflict stories the students obtain data about their own behavior in and their own reactions to conflict situations. The effective implementers tend to refer back to the data of the role-playing incident whereas the less effective implementers tend to refer to the role-playing situations much less frequently. They have much greater difficulty handling the informational complexity of the situation in which the student studies a conflict by acting it out and then makes his own behavior the subject of his investigation.

At this point we tend to conclude that personality plays a considerable role not only in the normal teaching style and also in the acquisition of complex models of teaching. At present we are exploring the role of personality as it interacts with training conditions in an effort to find access particularly to students of a lower conceptual level. An investigation of a study in this domain is the current one by Roma Reid,[21] one of Hunt's

associates at the Ontario Institute for Studies in Education. In Reid's study teachers are exposed to instructional systems designed to teach complex teaching skills under different training conditions which are systematically matched and unmatched with the personality characteristics. (This is an application of the matching model which Hunt will explore in his section of this symposium.) Heck[22] also has explored a differential training model in sensitivity training for teachers. The assumption is that if we can find the kinds of training conditions which are optimal for learners of various conceptual levels we may be able to assist them to develop the kinds of complex modes of teaching which are essential to the social studies.

At this point we believe the following conclusions are warranted:

1. Ordinarily teachers do not manifest the complex teaching models which are required in most curriculum innovations in the social studies. Personality seems to play a very definite role in their manifestation of an expanded or variable teaching style.
2. It does appear possible to train teachers to acquire complex models of teaching but personality plays a role in the acquisition of those models. Without systematic training it is very unlikely that teachers will acquire the models of teaching required by current curriculum reform projects.
3. It appears worthwhile to develop instructional systems which modulate training types to the conceptual style or learning style of the teacher and to try to determine whether it is possible to teach teachers of low conceptual development the complex models required by contemporary curricular systems.

We are optimistic due to the relatively high yield of the few training studies which have been conducted. We believe that it may not take too long to lay a knowledge base on which we can build the teacher training programs necessary to bring teachers to competency in the transactional skills of the social studies.

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